Course Information Form (CIF)

Course Code: AFM 117

Course Title: Computer Controls and Scan Tools

Department: Applied Sciences and Technologies
PCS Code: 1.2 - Occupational/Technical Instruction
CIP Code: 47.0604
Repeatability: 0

Effective Date: Summer 2026

Credit Hours

Catalog Notation: 3-2-4
Credit Hour Distribution:

Lecture: 3	Lab: 2	Clinical: 0	**Total: 4**

General Course Information

Catalog Description

Automotive computers and control strategies, networks and multiplexing, electrical/electronic accessories, supplemental restraint systems, and introduction to driveability. Use of appropriate diagnostic equipment such as digital volt meters (DVMs), oscilloscopes, and scan tools will be emphasized. Students who successfully complete this course may receive current certification from Ford Motor Company in Electronic System Diagnosis.

General Course Objectives

The student will have a basic understanding of various electronic principles and electronic components. The student will be able to operate various kinds of diagnostic scan tools and correctly interpret the displayed data. The student will have a basic understanding of various electronically-controlled systems used on today's vehicles.

Minimum Placement Levels

English	Reading	Math
Placement into ENG 098	Placement into CCS 098	Placement into MAT 059

Prerequisites

Credit in AFM 115

Methods of Evaluation

Students will have a minimum of 2 quizzes, 20 lab exercises, 7 web courses, 1 lab practical exam, and 5 Automotive Service Excellence (ASE)/Ford Certification exams.

Instructional Materials and Additional Supplies

Automotive Technology, ISBN 9781337794213

Course Content

General Learning Outcomes (GLOs)

- Reasoning and Inquiry: Students will demonstrate the ability to solve problems using deductive reasoning and logic, quantitative reasoning, or the scientific method.
- Technology: Students will demonstrate the ability to evaluate, select, and appropriately use current and emerging tools.

Course Segments and Student Learning Outcomes

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Automotive Computers	1. Demonstrate an understanding of automotive computer operations.	3	4	0
Usage of Scan Tools	1. Demonstrate proper use of all scan tool equipment needed for fault finding.	3	7	0
Computer Application	1. Demonstrate an awareness of computer interaction with various interrelated systems.	4	1	0
Driveability Diagnosis: a. Electronic Engine Controls, b. Base Engine Causes of Driveability Symptoms, c. Non-Engine Causes of Driveability Symptoms	1. Determine the source of driveability concerns and proper diagnosis of driveability concerns.	7	4	0
Computer Reprogramming	1. Demonstrate how to make upgrades possible as manufacturer makes changes.	3	2	0
Trouble Code Diagnosis: a. Onboard Diagnostics I (OBDI), b. Onboard Diagnostics II (OBDII)	1. Express the method used to distinguish faults identified by the computer.	3	2	0
OBDII Controls	1. Demonstrate an awareness of the latest computer operating system.	5	4	0
Snapshot Diagnosis and Analysis	1. Demonstrate an awareness of a means of diagnosing intermittent faults.	9	4	0
Supplemental Restraint Systems: a. Passive, b. Active	1. Demonstrate an awareness of proper diagnostic and repair procedures of the supplemental testing systems.	2	1	0
Audio Systems	1. Demonstrate an awareness of the recommended diagnostic and repair procedure of the audio systems.	1	1	0

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Shop Manual Usage: a. Powertrain Control Emissions Diagnosis (PCED), b. Electrical and Vacuum Troubleshooting Manual (EVTM), c. Manuals Available on CD/DVD, d. Online Automotive Service Information System (OASIS), e. Ford Motor Company (FMC) Dealer, f. Technical Assistance Center (TAC)	1. Demonstrate an awareness of the content and location of diagnostic and repair information.	5	0	0

Total Contact Hours

Lecture Hours	Lab Hours	Clinical Hours
45	30	0